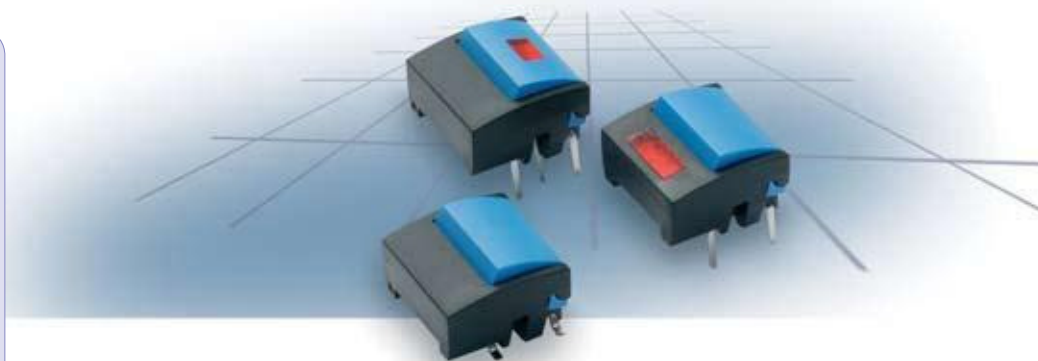


### Technical Data

- ? through-hole or SMD
- ? 50mA/24VDC
- ? single pole/momentary
- ? 10.000.000 operations life time
- ? IP67 sealing
- ? temperature range:  
low temp: -40/+115°C  
high temp: -40/+160°C



| Dimensions (through-hole) | Dimensions w/LED in switch (1C)  | Dimensions w/LED PCB mounted (2B) | Dimensions (SMD)      |
|---------------------------|----------------------------------|-----------------------------------|-----------------------|
| <br><b>PCB layout</b>     | <br><b>PCB layout (top view)</b> | <br><b>PCB layout (top view)</b>  | <br><b>PCB layout</b> |

### How to order

|               |                 |                                               |   |            |                                                                                                                                |   |              |                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
|---------------|-----------------|-----------------------------------------------|---|------------|--------------------------------------------------------------------------------------------------------------------------------|---|--------------|--------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>3 A</b>    |                 |                                               | + | <b>1 B</b> |                                                                                                                                | + | <b>2 A</b>   |                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
| <b>Switch</b> | <b>Mounting</b> | <b>L 6</b> low temp.<br><b>H 9</b> high temp. |   | <b>Cap</b> | <b>00</b> blue<br><b>02</b> green<br><b>03</b> grey<br><b>04</b> yellow<br><b>06</b> white<br><b>08</b> red<br><b>09</b> black |   | <b>Bezel</b> | <b>00</b> blue<br><b>02</b> green<br><b>03</b> grey<br><b>04</b> yellow<br><b>06</b> white<br><b>08</b> red<br><b>09</b> black | <b>For 1B and 2A only:</b><br><b>30</b> ultra blue<br><b>40</b> dusty blue<br><b>42</b> aqua blue<br><b>32</b> mint green<br><b>33</b> tele grey<br><b>34</b> melon<br><b>38</b> noble red<br><b>50</b> metal dark blue<br><b>53</b> metal light grey<br><b>57</b> metal dark grey<br><b>58</b> metal bordeaux |

|               |                                                      |                                               |   |                                                                                      |                                                                                                                                |                                                                                                                                |                         |                                                                                                                                |                                                                                                                    |                                                                                                                                |
|---------------|------------------------------------------------------|-----------------------------------------------|---|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|-------------------------|--------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| <b>3 A</b>    | <b>T</b>                                             |                                               | + | <b>1 C</b>                                                                           |                                                                                                                                | +                                                                                                                              |                         | +                                                                                                                              | <b>2 A</b>                                                                                                         |                                                                                                                                |
| <b>Switch</b> | <b>Mounting</b><br>T through-hole                    | <b>L 6</b> low temp.<br><b>H 9</b> high temp. |   | <b>LED</b><br><b>00</b> blue<br><b>20</b> green<br><b>40</b> yellow<br><b>80</b> red | <b>Cap</b>                                                                                                                     | <b>00</b> blue<br><b>02</b> green<br><b>03</b> grey<br><b>04</b> yellow<br><b>06</b> white<br><b>08</b> red<br><b>09</b> black |                         | <b>Lens</b><br><b>1</b> transparent<br><b>2</b> green<br><b>4</b> yellow<br><b>8</b> red                                       | <b>Bezel</b>                                                                                                       | <b>00</b> blue<br><b>02</b> green<br><b>03</b> grey<br><b>04</b> yellow<br><b>06</b> white<br><b>08</b> red<br><b>09</b> black |
| <b>3 A</b>    |                                                      |                                               | + | <b>1 B</b>                                                                           |                                                                                                                                | +                                                                                                                              | <b>2 B</b>              |                                                                                                                                |                                                                                                                    |                                                                                                                                |
| <b>Switch</b> | <b>Mounting</b><br>T through-hole<br>S surface mount | <b>L 6</b> low temp.<br><b>H 9</b> high temp. |   | <b>Cap</b>                                                                           | <b>00</b> blue<br><b>02</b> green<br><b>03</b> grey<br><b>04</b> yellow<br><b>06</b> white<br><b>08</b> red<br><b>09</b> black |                                                                                                                                | <b>Bezel</b>            | <b>00</b> blue<br><b>02</b> green<br><b>03</b> grey<br><b>04</b> yellow<br><b>06</b> white<br><b>08</b> red<br><b>09</b> black | <b>Lens</b><br><b>1</b> transparent<br><b>2</b> green<br><b>4</b> yellow<br><b>6</b> frosted white<br><b>8</b> red |                                                                                                                                |
|               |                                                      |                                               |   |                                                                                      |                                                                                                                                | +                                                                                                                              | <b>2 B X X X</b>        |                                                                                                                                |                                                                                                                    |                                                                                                                                |
|               |                                                      |                                               |   |                                                                                      |                                                                                                                                |                                                                                                                                | <b>LED for 2B bezel</b> | <b>20</b> green<br><b>40</b> yellow<br><b>80</b> red                                                                           |                                                                                                                    |                                                                                                                                |

Keycaps and bezels shown on this page can also be used on  
illumecc™ switch 4A - see page 9. Part nos. for bezels for 4A are 2C and 2D.

Ordering example: 3ATL640 + 1C094 + 2A04

For updates of products and/or changes of specifications please see [www.mec.dk](http://www.mec.dk)

# multimec®

## 3A + 1A/1H/1M/1ZA

### Technical Data

- through-hole or SMD
- 50mA/24VDC
- single pole/momentary
- 10.000.000 operations life time
- IP67 sealing
- temperature range:  
low temp: -40/+115°C  
high temp: -40/+160°C



| Dimensions (through-hole)<br>1A | Dimensions (w/LED)<br>1H | Dimensions (SMD)<br>1ZA | Dimensions (SMD)<br>1M |
|---------------------------------|--------------------------|-------------------------|------------------------|
|                                 |                          |                         |                        |

### How to order

|            |                                   |                                 |   |              |                                                                                  |                                                                                                                |                                                                                          |
|------------|-----------------------------------|---------------------------------|---|--------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| <b>3 A</b> | <input type="checkbox"/>          | <input type="checkbox"/>        | + | <b>1 A</b>   | <input type="checkbox"/>                                                         |                                                                                                                |                                                                                          |
| Switch     | Mounting                          | L 6 low temp.<br>H 9 high temp. |   | Cap          | 00 blue<br>02 green<br>03* grey<br>04 yellow<br>06* white<br>08 red<br>09* black | 30* ultra blue<br>40* dusty blue<br>42* aqua blue<br>32 mint green<br>33 tele grey<br>34 melon<br>38 noble red | 50* metal dark blue<br>53* metal light grey<br>57* metal dark grey<br>58* metal bordeaux |
|            | T through-hole<br>S surface mount |                                 |   | <b>1 Z A</b> |                                                                                  |                                                                                                                |                                                                                          |
|            |                                   |                                 |   | Cap          |                                                                                  |                                                                                                                |                                                                                          |

|            |                                   |                                 |   |            |                                                                               |
|------------|-----------------------------------|---------------------------------|---|------------|-------------------------------------------------------------------------------|
| <b>3 A</b> | <input type="checkbox"/>          | <input type="checkbox"/>        | + | <b>1 M</b> | <input type="checkbox"/>                                                      |
| Switch     | Mounting                          | L 6 low temp.<br>H 9 high temp. |   | Cap        | 00 blue<br>02 green<br>03 grey<br>04 yellow<br>06 white<br>08 red<br>09 black |
|            | T through-hole<br>S surface mount |                                 |   |            |                                                                               |

|            |                |                                 |   |                                                                               |                                                                  |
|------------|----------------|---------------------------------|---|-------------------------------------------------------------------------------|------------------------------------------------------------------|
| <b>3 A</b> | <b>T</b>       | <input type="checkbox"/>        | + | <b>1 H</b>                                                                    | <input type="checkbox"/>                                         |
| Switch     | Mounting       | L 6 low temp.<br>H 9 high temp. |   | Cap                                                                           | Lens                                                             |
|            | T through-hole |                                 |   | 00 blue<br>02 green<br>03 grey<br>04 yellow<br>06 white<br>08 red<br>09 black | 1 transparent<br>2 green<br>4 yellow<br>6 frosted white<br>8 red |
|            |                |                                 |   | LED                                                                           |                                                                  |
|            |                |                                 |   | 00 blue<br>20 green<br>40 yellow<br>80 red                                    |                                                                  |

Keycaps shown on this page can also be used on  
illumecc™ switch 4A - see page 9

Ordering example: 3ATL680 + 1H098

For updates of products and/or changes of specifications please see [www.mec.dk](http://www.mec.dk)

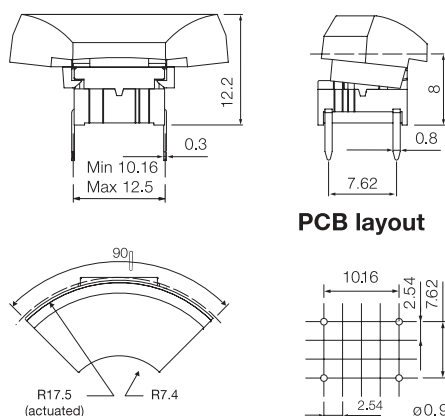
# multimec<sup>®</sup> Navimec<sup>™</sup>

## Technical Data

- through-hole or SMD
- 50mA/24VDC
- single pole/momentary
- 10.000.000 operations life time
- IP67 sealing
- temperature range:  
low temp: -40/+115°C  
high temp: -40/+160°C

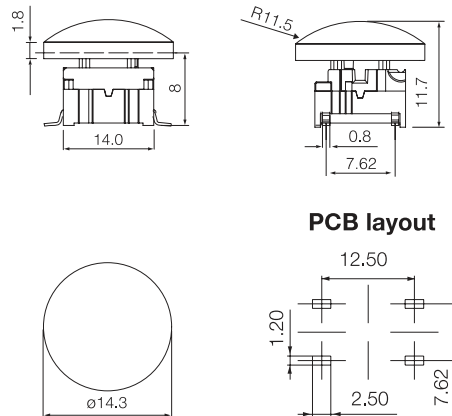


### Dimensions 1ZB (through-hole)



PCB layout

### Dimensions 1ZC (SMD)

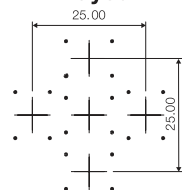


PCB layout

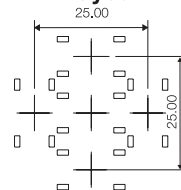
### Recommended panel cut-out:

ø35.0-35.5 Depending on application

### PCB layout TH



### PCB layout SMD



## How to order

|               |                          |                          |                          |                            |                          |
|---------------|--------------------------|--------------------------|--------------------------|----------------------------|--------------------------|
| <b>3 A</b>    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>   | <input type="checkbox"/> |
| <b>Switch</b> | <b>Mounting</b>          | <b>L 6</b> low temp.     | <b>Cap 1ZB</b>           | <b>03</b> grey             |                          |
|               | <b>T</b> through-hole    | <b>H 9</b> high temp.    |                          | <b>06</b> white            |                          |
|               | <b>S</b> surface mount   |                          |                          | <b>09</b> black            |                          |
|               |                          |                          |                          | <b>30</b> ultra blue       |                          |
|               |                          |                          |                          | <b>40</b> dusty blue       |                          |
|               |                          |                          |                          | <b>42</b> aqua blue        |                          |
|               |                          |                          |                          | <b>50</b> metal dark blue  |                          |
|               |                          |                          |                          | <b>53</b> metal light grey |                          |
|               |                          |                          |                          | <b>57</b> metal dark grey  |                          |
|               |                          |                          |                          | <b>58</b> metal bordeaux   |                          |

## Navimec<sup>™</sup> Module

|                            |                                                              |
|----------------------------|--------------------------------------------------------------|
| <b>Part No. 9508000</b>    | <b>Navimec<sup>™</sup> Module excl. keycaps</b>              |
| <b>Part No. 950XXYY</b>    | <b>Navimec<sup>™</sup> Module incl. keycaps</b>              |
| <b>Part No. 9509XXYYYY</b> | <b>Navimec<sup>™</sup> Module incl. keycaps with legends</b> |

The module can be delivered with keycaps (4 x 1ZB and 1 x 1ZC) in solid colours or black keycaps with white legends.

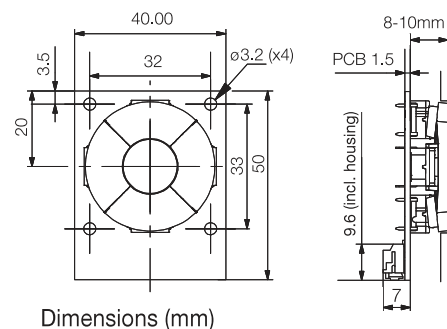
For module incl. keycaps in solid colours (950XXYY) please indicate colour code for 1ZBXX and colour code for 1ZCYY.

For module incl. keycaps with legends (9509XXYYYY) please indicate legends for 1ZBXXX and legends for 1ZCYYY. All Caps are black with white legends. Please see legends available on page 23.

**Examples:** Module with 5 switches (4x3ATL6+1x3FTL6) mounted with 4x1ZB30 ultra blue and 1x1ZC42 aqua blue = 9503042.

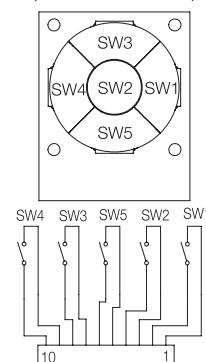
Module with 5 switches (4x3ATL6+1x3FTL6) mounted with 4x1ZB09XD136 (legend arrow) and 1x1ZC09118 (legend OK) = 9509136118.

### Dimensions Navimec<sup>™</sup> Module



Dimensions (mm)

### Circuit Diagram Navimec<sup>™</sup> Module (Front side View)



The plug on the Navimec<sup>™</sup> module is JST SMT S10B-PH-SM3-TB or similar.  
We recommend using  
Cable socket: JST PHR-10 or similar  
Contact: JST SPH-002T-PO.5S or similar.

**Ordering example:** 4x3ATL6+1ZB53 and 1x3FTL6+1ZC58 or Navimec<sup>™</sup> Module 9505358

For updates of products and/or changes of specifications please see [www.mec.dk](http://www.mec.dk)

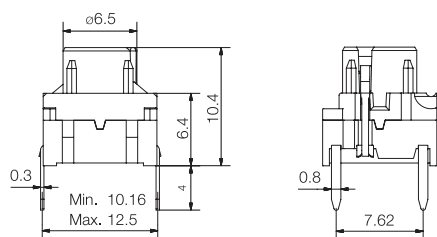
# multimec® illumec™ 4F

## Technical Data

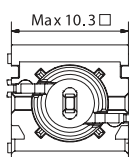
- through-hole or SMD
- 50mA/24VDC
- single pole/momentary
- 10.000.000 operations life time
- IP67 sealing
- temperature range:  
high temp. switch; -40/+160°C  
LED: -30/+85°C



### Dimensions (through-hole)

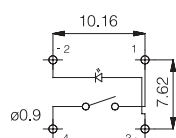


### Top View

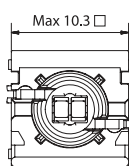
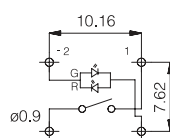


### PCB layout and Circuit Diagram

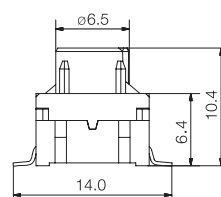
#### 1 LED



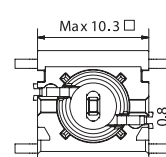
#### 2 LEDs



### Dimensions (SMD)

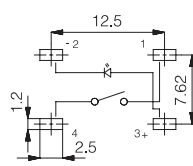


### Top View

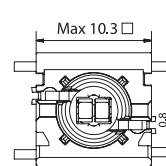
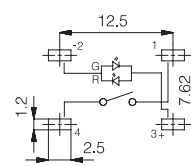


### PCB layout and Circuit Diagram

#### 1 LED



#### 2 LEDs



Technical specifications for 4F switch and LEDs see pages 35 and 36

## How to order

| Switch | Mounting      | LED  | Illuminated Cap |               |
|--------|---------------|------|-----------------|---------------|
| 4 F    |               |      |                 |               |
| SH9    | surface mount | 01   |                 | 1D            |
| TH9    | through-hole  | 22   |                 | 1K, 1KB, 1KC  |
|        |               | 42   |                 | 1N            |
|        |               | 61   |                 | 1S            |
|        |               | 82   |                 | 1T            |
|        |               | 2242 |                 | 1U            |
|        |               | 8222 |                 | 1V            |
|        |               | 8242 |                 | 1WA, 1WD, 1WP |
|        |               |      |                 | 1X            |

## Colour code

|                | Cap | Solid Colour | Illuminated Lens                 |
|----------------|-----|--------------|----------------------------------|
| 11,16          |     |              |                                  |
| 11,16          |     |              |                                  |
| 10,12,14,16,18 |     |              | 1E Solid Colour + lens 1,2,4,6,8 |
| 11             |     |              | 1F Solid Colour + lens 1,2,4,6,8 |
| 16             |     |              | 1Q Solid Colour + lens 1,6       |
| 16             |     |              | 1R Solid Colour + lens 1,6       |
| 16             |     |              |                                  |
| 16             |     |              |                                  |
| 11             |     |              |                                  |

## Colour codes

| LEDs              | Illuminated Caps  | Lenses          |
|-------------------|-------------------|-----------------|
| 01 blue           | 10 frosted blue   | 1 transparent   |
| 22 green          | 11 transparent    | 2 green         |
| 42 yellow         | 12 frosted green  | 4 yellow        |
| 61 white          | 14 frosted yellow | 6 frosted white |
| 82 red            | 16 frosted white  | 8 red           |
| 2242 green/yellow | 18 frosted red    |                 |
| 8222 red/green    |                   |                 |
| 8242 red/yellow   |                   |                 |

## Solid Colours

| 1E, 1F    | 1Q, 1R   |
|-----------|----------|
| 00 blue   | 00 blue  |
| 02 green  | 03 grey  |
| 03 grey   | 08 red   |
| 04 yellow | 09 black |
| 06 white  |          |
| 08 red    |          |
| 09 black  |          |

## Dimensions

| Caps          | See Page |
|---------------|----------|
| 1D, 1E, 1F    | 15       |
| 1K, 1KB, 1KC  | 16       |
| 1N            | 14       |
| 1Q, 1R        | 18       |
| 1S            | 21       |
| 1T, 1U, 1V    | 19       |
| 1WA, 1WD, 1WP | 17       |
| 1X            | 20       |

Ordering example: 4FSH98242 + 1D11 or 4FTH922 + 1T16

For updates of products and/or changes of specifications please see [www.mec.dk](http://www.mec.dk)

# multimec®

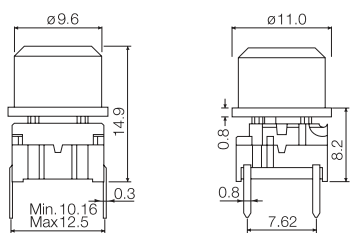
## 3F + 1D/1E/1F

### Technical Data

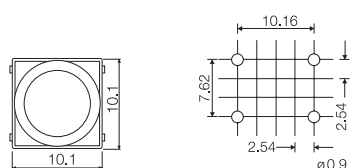
- through-hole or SMD
- 50mA/24VDC
- single pole/momentary
- 10.000.000 operations life time
- IP67 sealing
- temperature range:  
low temp: -40/+115°C  
high temp: -40/+160°C



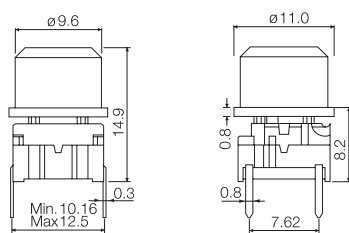
### Dimensions (through-hole)



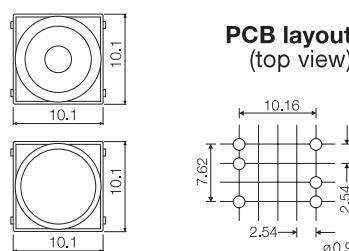
### PCB layout



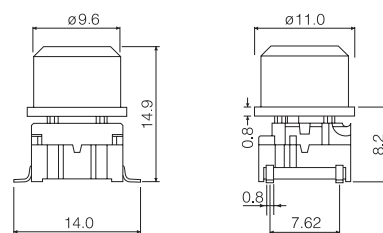
### Dimensions (w/LED)



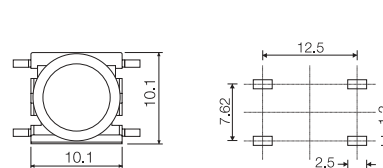
### PCB layout (top view)



### Dimensions (SMD)



### PCB layout



### How to order

**3 F**

Switch

**T**

Mounting

T through-hole  
S surface mount

**L 6**

L 6 low temp.  
H 9 high temp.

**1 D**

Cap



**00**

00 blue  
02 green  
03 grey  
04 yellow  
06 white  
08 red  
09 black

30 ultra blue  
40 dusty blue  
42 aqua blue  
32 mint green  
33 tele grey  
34 melon  
38 noble red

50 metal dark blue  
53 metal light grey  
57 metal dark grey  
58 metal bordeaux

**3 F**

Switch

**T**

Mounting

T through-hole

**L 6**

L 6 low temp.  
H 9 high temp.

**LED**

00 blue  
20 green  
40 yellow  
60 white  
80 red  
2040 green/yellow  
8020 red/green  
8040 red/yellow

+

**Cap 1D**



**Cap 1E**



**Cap 1F**



**11**

11 transparent  
16 frosted white

**Lens**

00 blue  
02 green  
03 grey  
04 yellow  
06 white  
08 red  
09 black

1 transparent  
2 green  
4 yellow  
6 frosted white  
8 red

Keycaps shown on this page can also be used on  
illumec™ switch 4F - see page 13

Ordering example: 3FTL620 + 1E032

For updates of products and/or changes of specifications please see [www.mec.dk](http://www.mec.dk)

# multimec® 3F + 1K/1KB/1KC

## Technical Data

- through-hole or SMD
- 50mA/24VDC
- single pole/momentary
- 10.000.000 operations life time
- IP67 sealing
- temperature range:  
low temp: -40/+115°C  
high temp: -40/+160°C



| Dimensions 1K<br>(through-hole) | Dimensions 1KB<br>(w/LED) | Dimensions 1KC<br>(w/LED) | Dimensions 1K<br>(SMD) | Dimensions<br>(Bezel)<br>(Optional) |
|---------------------------------|---------------------------|---------------------------|------------------------|-------------------------------------|
|                                 |                           |                           |                        |                                     |

## How to order

|            |          |                                 |   |            |                                                                               |   |            |                                           |
|------------|----------|---------------------------------|---|------------|-------------------------------------------------------------------------------|---|------------|-------------------------------------------|
| <b>3 F</b> |          |                                 | + | <b>1 K</b> | <b>1 6</b>                                                                    | + | <b>2 K</b> |                                           |
| Switch     | Mounting | L 6 low temp.<br>H 9 high temp. |   | Cap        | 00 blue<br>02 green<br>03 grey<br>04 yellow<br>06 white<br>08 red<br>09 black |   | Bezel      | 03 grey<br>06 white<br>08 red<br>09 black |

|            |                                   |                                 |                                 |   |                   |   |            |                                           |
|------------|-----------------------------------|---------------------------------|---------------------------------|---|-------------------|---|------------|-------------------------------------------|
| <b>3 F</b> | <b>T</b>                          |                                 |                                 | + | <b>1 1 1 6</b>    | + | <b>2 K</b> |                                           |
| Switch     | Mounting                          | L 6 low temp.<br>H 9 high temp. | LED                             |   | Cap frosted white |   | Bezel      | 03 grey<br>06 white<br>08 red<br>09 black |
|            | T through-hole<br>S surface mount |                                 | 23 green<br>45 yellow<br>88 red |   | 1K                |   |            |                                           |
|            |                                   |                                 |                                 |   | 1KB               |   |            |                                           |
|            |                                   |                                 |                                 |   | 1KC               |   |            |                                           |

The 1K caps consist of a transparent lid and a diffuser lens.  
It is possible to make your own customized legend by placing a foil  
between the lid and the lens.

Keycaps shown on this page can also be used on  
**illumec™ switch 4F - see page 13**

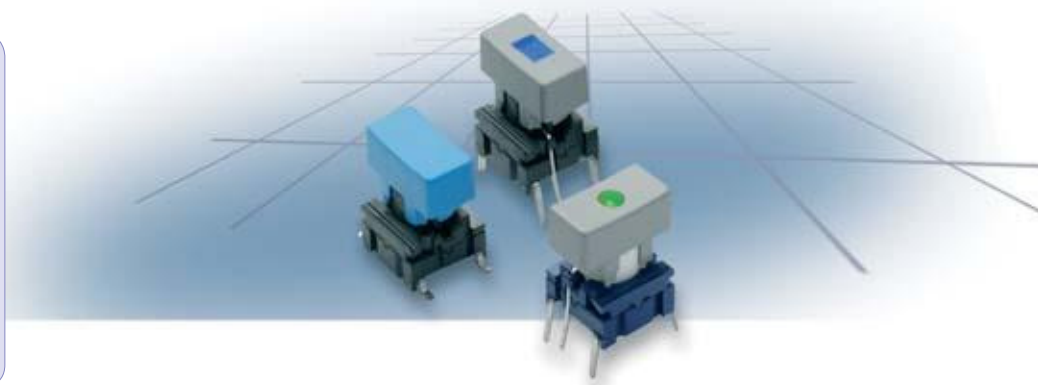
**Ordering example:** 3FTL688 + 1K1116

For updates of products and/or changes of specifications please see [www.mec.dk](http://www.mec.dk)

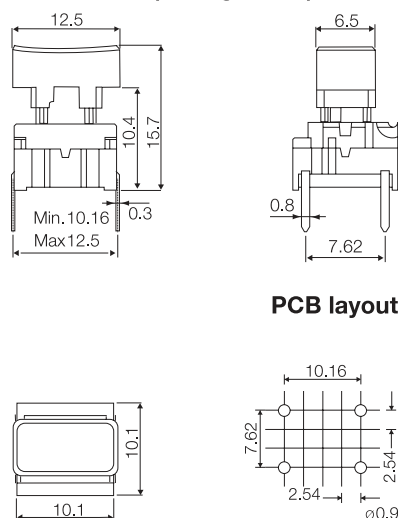
# multimec® 3F + 1P/1Q/1R

## Technical Data

- through-hole or SMD
- 50mA/24VDC
- single pole/momentary
- 10.000.000 operations life time
- IP67 sealing
- temperature range:  
low temp: -40/+115°C  
high temp: -40/+160°C

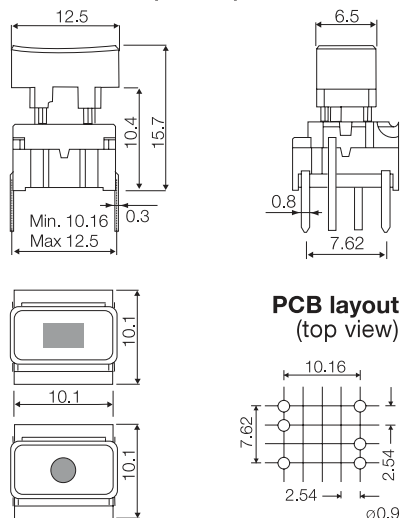


### Dimensions (through-hole)



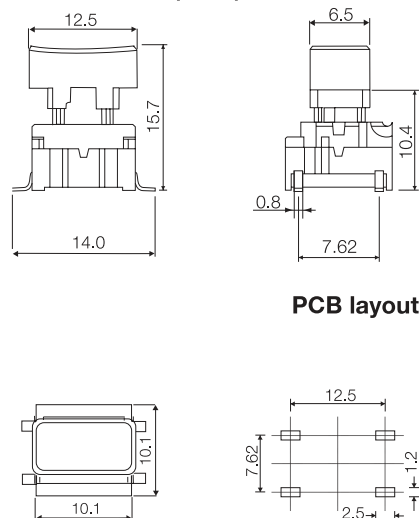
### PCB layout

### Dimensions (w/LED)



### PCB layout (top view)

### Dimensions (SMD)



### PCB layout

## How to order

**3 F**

Switch



Mounting

T through-hole  
S surface mount



L 6 low temp.  
H 9 high temp.

+

**1 P**

Cap



00 blue  
02 green  
03 grey  
04 yellow  
06 white  
08 red  
09 black

**3 F**

Switch



Mounting

T through-hole



L 6 low temp.  
H 9 high temp.



LED

00 blue  
20 green  
40 yellow  
60 white  
80 red  
2040 green/yellow  
8020 red/green  
8040 red/yellow

+



1Q



00 blue  
03 grey  
08 red  
09 black



Lens

1 transparent  
6 frosted white

Keycaps shown on this page can also be used on  
illumec™ switch 4F - see page 13

Ordering example: 3FTL680 + 1Q091

For updates of products and/or changes of specifications please see [www.mec.dk](http://www.mec.dk)

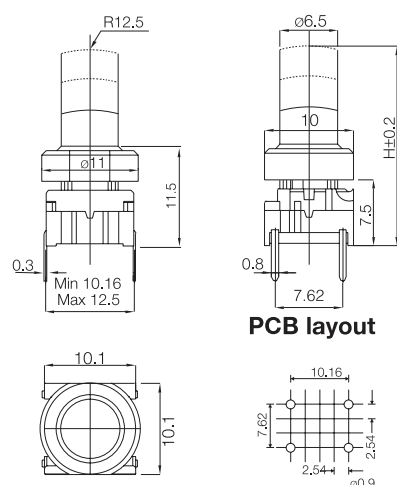
# multimec® 3F + 1S + 2S

## Technical Data

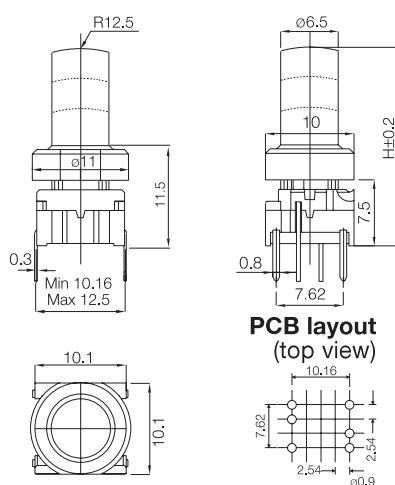
- through-hole or SMD
- 50mA/24VDC
- single pole/momentary
- 10.000.000 operations life time
- IP67 sealing
- temperature range:  
low temp: -40/+115°C  
high temp: -40/+160°C



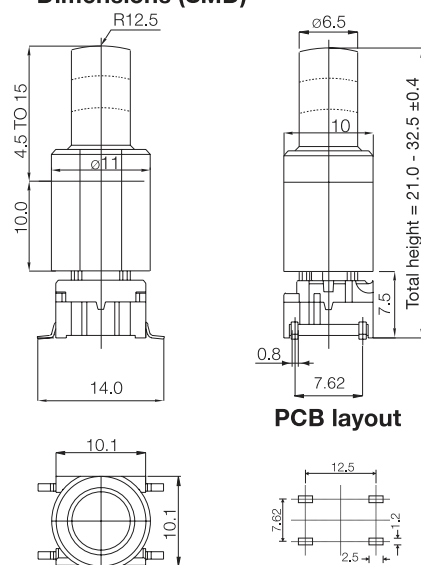
## Dimensions (through-hole)



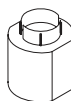
## Dimensions (w/LED)



## Dimensions (SMD)



## How to order

|               |                          |                          |   |                                                                                     |               |                                                                                       |
|---------------|--------------------------|--------------------------|---|-------------------------------------------------------------------------------------|---------------|---------------------------------------------------------------------------------------|
| <b>3 F</b>    | <input type="checkbox"/> | <input type="checkbox"/> | + | <b>1 S 0 9 - . . .</b>                                                              | +             | <b>2 S 0 9 - . . .</b>                                                                |
| <b>Switch</b> |                          |                          |   | <b>Cap black</b>                                                                    | <b>Height</b> | <b>Extender black</b>                                                                 |
|               | <b>Mounting</b>          |                          |   |  | <b>16.0</b>   |  |
|               | <b>T</b> through-hole    | <b>L 6</b> low temp.     |   |                                                                                     | <b>19.0</b>   | <b>05.0</b> (Optional)                                                                |
|               | <b>S</b> surface mount   | <b>H 9</b> high temp.    |   |                                                                                     | <b>22.5</b>   | <b>06.0</b> Adds 5-10mm to total height                                               |
|               |                          |                          |   |                                                                                     |               | <b>07.0</b>                                                                           |
|               |                          |                          |   |                                                                                     |               | <b>08.0</b>                                                                           |
|               |                          |                          |   |                                                                                     |               | <b>09.0</b>                                                                           |
|               |                          |                          |   |                                                                                     |               | <b>10.0</b>                                                                           |

|               |                       |                          |   |                          |                                                                                       |
|---------------|-----------------------|--------------------------|---|--------------------------|---------------------------------------------------------------------------------------|
| <b>3 F</b>    | <b>T</b>              | <input type="checkbox"/> | + | <input type="checkbox"/> | <b>1 S 1 1 - . . .</b>                                                                |
| <b>Switch</b> | <b>Mounting</b>       |                          |   |                          | <b>Cap Transparent</b>                                                                |
|               | <b>T</b> through-hole | <b>L 6</b> low temp.     |   |                          | <b>Height</b>                                                                         |
|               |                       | <b>H 9</b> high temp.    |   |                          |  |

## Customised Heights:

3F+1S is available in any height from 12.0 to 24 mm.

3F+1S+2S is available in any height from 17.0 to 34 mm.

Min. height for 1S11 is 16.0 and for 1S09 min height is 12.0 mm.

Min. order qty. for custom heights is 2.000 pcs.

For heights less than 12.0 mm, please refer to 3E switch range.

Keycaps shown on this page can also be used on  
**illumec™ switch 4F - see page 13**

|                          |                        |
|--------------------------|------------------------|
| <b>LED</b>               | <b>Cap Transparent</b> |
| <b>00</b> blue           | <b>16.0</b>            |
| <b>20</b> green          | <b>19.0</b>            |
| <b>40</b> yellow         | <b>22.5</b>            |
| <b>60</b> white          |                        |
| <b>80</b> red            |                        |
| <b>2040</b> green/yellow |                        |
| <b>8020</b> red/green    |                        |
| <b>8040</b> red/yellow   |                        |

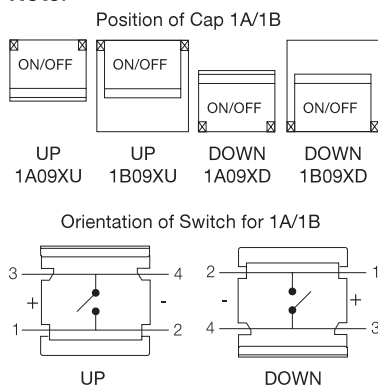
**Ordering example:** 3FTL640 + 1S11-19.0

For updates of products and/or changes of specifications please see [www.mec.dk](http://www.mec.dk)



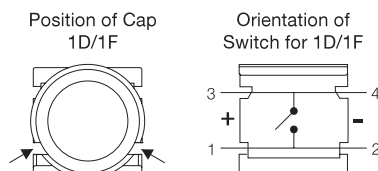
All standard legends are white on black caps.  
The size of the legends listed may not correspond to the actual size. Please ask your local distributor, if you do not find what you need on the list. New legends may have been added after this catalogue was printed.  
Custom legends and other colour combinations are available, please contact your local distributor.

## Note!



For 1A/1B the orientation shown above is standard.

**Please consider the switch orientation you require before specifying legend orientation.**



For the 1D and 1F caps the orientation shown above is standard.

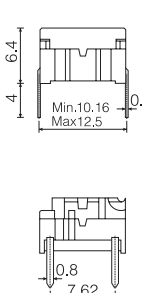
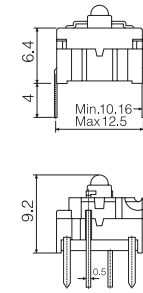
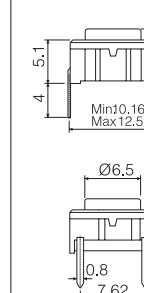
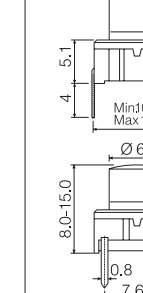
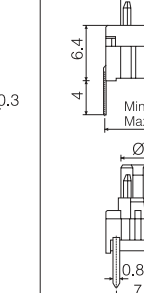
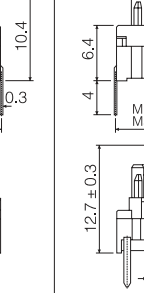
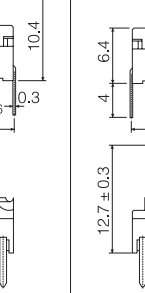
**Please consider the switch orientation you require before specifying legend orientation.**

## Standard Keycap Legends

|        | Part no. |         |         |         |       |        |          |        |
|--------|----------|---------|---------|---------|-------|--------|----------|--------|
|        |          |         |         |         |       |        |          |        |
| LEGEND | 1A09XU_  | 1A09XD_ | 1B09XU_ | 1B09XD_ | 1D09_ | 1F096_ | 1ZB09XD_ | 1ZC09_ |
| 0      | 000      | 000     | 000     | 000     | 000   | 000    |          |        |
| 1      | 001      | 001     | 001     | 001     | 001   | 001    |          |        |
| 2      | 002      | 002     | 002     | 002     | 002   | 002    |          |        |
| 3      | 003      | 003     | 003     | 003     | 003   | 003    |          |        |
| 4      | 004      | 004     | 004     | 004     | 004   | 004    |          |        |
| 5      | 005      | 005     | 005     | 005     | 005   | 005    |          |        |
| 6      | 006      | 006     | 006     | 006     | 006   | 006    |          |        |
| 7      | 007      | 007     | 007     | 007     | 007   | 007    |          |        |
| 8      | 008      | 008     | 008     | 008     | 008   | 008    |          |        |
| 9      | 009      | 009     | 009     | 009     | 009   | 009    |          |        |
| A      | 010      | 010     | 010     | 010     |       |        |          |        |
| B      | 011      | 011     | 011     | 011     |       |        |          |        |
| C      | 012      | 012     | 012     | 012     |       |        |          |        |
| D      | 013      | 013     | 013     | 013     |       |        |          |        |
| #      | 107      | 107     | 107     | 107     | 107   | 107    |          |        |
| *      | 019      | 019     | 019     | 019     | 019   | 019    |          |        |
| ⇧      | 016      | 016     | 016     | 016     |       |        |          |        |
| →      | 033      | 033     | 033     | 033     | 033   |        |          |        |
| ←      | 133      | 133     | 133     | 133     | 133   |        |          |        |
| ↑      | 034      | 034     | 034     | 034     | 034   |        |          |        |
| ↓      | 134      | 134     | 134     | 134     | 134   |        |          |        |
| ↶      | 135      | 135     | 135     | 135     | 135   | 135    |          |        |
| +      | 054      | 054     | 054     | 054     |       |        |          |        |
| -      | 059      | 059     | 059     | 059     |       |        |          |        |
| •      | 056      | 056     | 056     | 056     |       |        |          |        |
| ▲      |          |         |         |         |       |        | 136      |        |
| ⏻      | 123      | 123     | 123     | 123     | 123   | 123    |          | 123*   |
| START  | 031      | 031     | 031     | 031     |       |        |          |        |
| CLEAR  | 036      | 036     | 036     | 036     |       |        |          |        |
| LOAD   | 037      | 037     | 037     | 037     |       |        |          |        |
| RESET  | 038      | 038     | 038     | 038     |       |        |          | 038    |
| CANCEL | 048      | 048     | 048     | 048     |       |        |          |        |
| ENTER  |          |         |         |         |       |        |          | 105    |
| OK     |          |         |         |         |       |        |          | 118    |
| SET    |          |         |         |         |       |        |          | 119    |
| MENU   |          |         |         |         |       |        |          | 120    |
| FUNC   |          |         |         |         |       |        |          | 121    |
| HOME   |          |         |         |         |       |        |          | 122    |

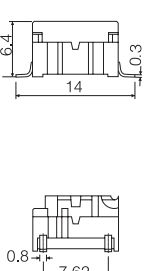
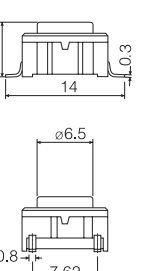
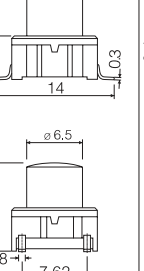
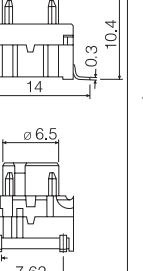
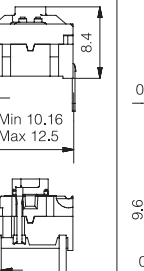
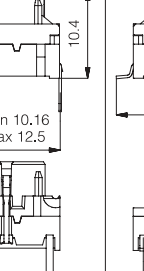
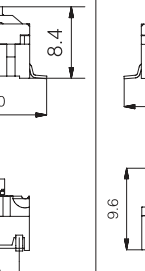
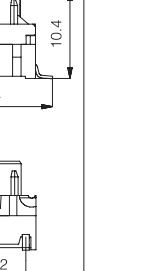
\* Also on 1ZC16 for illumination

# multimec® basic switch modules

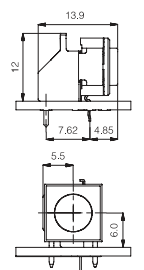
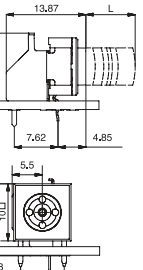
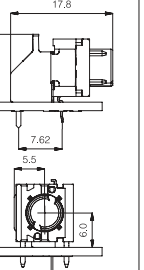
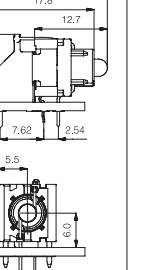
| Through-hole Versions                                                            |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 3A                                                                               | 3C                                                                                | 3E                                                                                | 3F                                                                                | 3F                                                                                 | 3F                                                                                  | 3F                                                                                  |
| For 1A/1B/1M/1ZA/1ZB                                                             | w/LED for 1C/1H                                                                   | For 3E actuators/Varimec                                                          | For 1D/1K/1N/1P/1S/1T/1U/1V/1WA/1WD/1WG/1WP/1X/1ZC/1GA/1GC                        | w/LED for 1D/1E/1F/1N/1Q/1R/1S/1X                                                  | w/LED for 1K/1KB/1KC/1T/1U/1V/1WA/1WD/1WP                                           |                                                                                     |
|  |  |  |  |  |  |  |
| Standard Versions                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |
| 3ATL6<br>3ATH9                                                                   | 3ATL600/20/40/80                                                                  | 3CTL6/3CTL9<br>3CTH9                                                              | 3ETLXX-H*<br>3ETHXX-H*                                                            | 3FTL6<br>3FTH9                                                                     | 3FTL600/20/40/60/80/<br>2040/8020/8040                                              | 3FTL623/45/88                                                                       |

\* 3E available in 6 standard heights: 08.0, 09.5, 10.4, 11.0, 12.0, 15.0 mm. Other heights between 08.0 and 15.0 mm are available upon request.

Specials: Gold contacts, quiet version and actuation force other than 3.0N

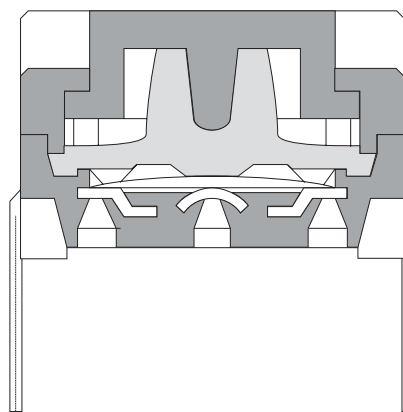
| Surface Mount Versions                                                            |                                                                                    |                                                                                    |                                                                                    | illumecc™ Through-hole Versions                                                     |                                                                                      | illumecc™ Surface Mount Versions                                                     |                                                                                      |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 3A                                                                                | 3C                                                                                 | 3E                                                                                 | 3F                                                                                 | 4AT w/LEDs                                                                          | 4FT w/LEDs                                                                           | 4AS w/LEDs                                                                           | 4FS w/LEDs                                                                           |
| For 1A/1B/1M/1ZA/1ZB                                                              |                                                                                    | For 3E actuators/Varimec                                                           | For 1D/1K/1N/1P/1S/1T/1U/1V/1WA/1WD/1WP/1X/1ZC/1GA/1GC                             | For 1C/1H                                                                           | For 1D/1E/1F/1K/1KB/1KC/1N/1Q/1R/1S/1T/1U/1V/1WA/1WD/1WP/1X                          | For 1C/1H                                                                            | For 1D/1E/1F/1K/1KB/1KC/1N/1Q/1R/1S/1T/1U/1V/1WA/1WD/1WP/1X                          |
|  |  |  |  |  |  |  |  |
| Standard Versions                                                                 |                                                                                    |                                                                                    |                                                                                    | Standard Versions                                                                   |                                                                                      |                                                                                      |                                                                                      |
| 3ASH9/3ASH9R                                                                      | 3CSH9/3CSH9R                                                                       | 3ESH9/3ESH9R                                                                       | 3FSH9/3FSH9R                                                                       | 4ATH901/22/42/61/82/<br>2242/8222/8242                                              | 4FTH901/22/42/61/82/<br>2242/8222/8242                                               | 4ASH901/22/42/61/82/<br>2242/8222/8242                                               | 4FSH901/22/42/61/82/<br>2242/8222/8242                                               |

Co-planarity = ≤ 0.05

| Right Angle Versions                                                               |                                                                                     |                                                                                     |                                                                                     |
|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 3C                                                                                 | 3E                                                                                  | 3F                                                                                  | 3F w/LED                                                                            |
|                                                                                    | For 3E actuators/Varimec                                                            | For 1D/1K/1N/1P/1S/1T/1U/1V/1W/1WA/1WD/1WP/1X/1ZC/1GA/1GC                           | For 1D/1E/1F/1N/1Q/1R/1S/1X                                                         |
|  |  |  |  |
| Standard Versions                                                                  |                                                                                     |                                                                                     |                                                                                     |
| 3CTL6RAS                                                                           | 3ETXX-X.XRAS                                                                        | 3FTL6RAS                                                                            | 3FTL600/20/40/60/80/<br>2040/8020/8040RAS                                           |

DIMENSIONS (mm) Unless otherwise specified, all tolerances ± 0.2

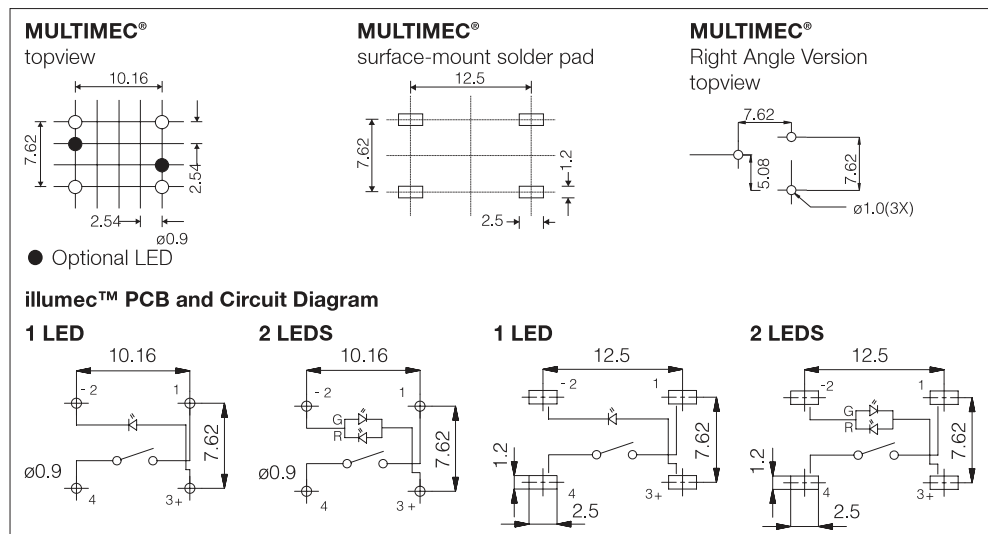
## multimec® Cross Section



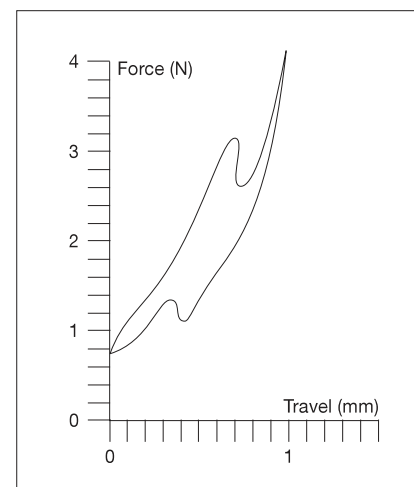
For updates of products and/or changes of specifications please see [www.mec.dk](http://www.mec.dk)

# multimec® basic switches and tape & reel

## Recommended PCB layout



## Operating Force (typical example)



Tape and reel is available for the parts listed and has the following specifications:

**Reel diameter** ø330mm  
**Tape width** 24mm  
**Pitch** see list  
**Tape and reel material** antistatic or better  
**Quantity per reel** see list

### 3A/3C/3E/3F multimec® tape & reel

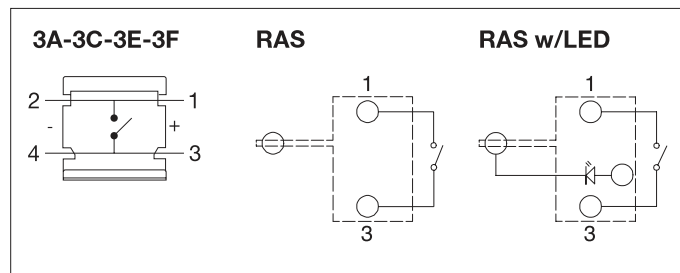
| Part No.               | Ordering Code        | Pitch | Quantity per reel |
|------------------------|----------------------|-------|-------------------|
| 3ASH9                  | 3ASH9R               | 16    | 500               |
| 3CSH9                  | 3CSH9R               | 16    | 500               |
| 3ESH9                  | 3ESH9R               | 16    | 500               |
| 3ESH9-08.0             | 3ESH9R08.0           | 20    | 250               |
| 3ESH9-09.5             | 3ESH9R09.5           | 20    | 250               |
| 3ESH9-10.4             | 3ESH9R10.4           | 20    | 250               |
| 3ESH9-11.0             | 3ESH9R11.0           | 20    | 250               |
| 3ESH9-12.0             | 3ESH9R12.0           | 20    | 250               |
| All varimec below 12.5 | R after the part no. | 20    | 250               |
| 3FSH9                  | 3FSH9R               | 20    | 250               |

### 4F illumec™ tape & reel

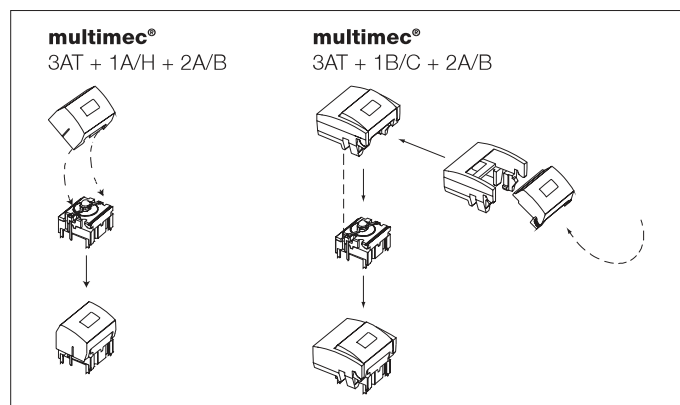
| Part No.  | Ordering Code | Pitch | Quantity per reel |
|-----------|---------------|-------|-------------------|
| 4FSH901   | 4FSH901R      | 20    | 250               |
| 4FSH922   | 4FSH922R      | 20    | 250               |
| 4FSH942   | 4FSH942R      | 20    | 250               |
| 4FSH961   | 4FSH961R      | 20    | 250               |
| 4FSH982   | 4FSH982R      | 20    | 250               |
| 4FSH92242 | 4FSH92242R    | 20    | 250               |
| 4FSH98222 | 4FSH98222R    | 20    | 250               |
| 4FSH98242 | 4FSH98242R    | 20    | 250               |

Specifications are according to EIA 600481-3 and IEC 60286-3

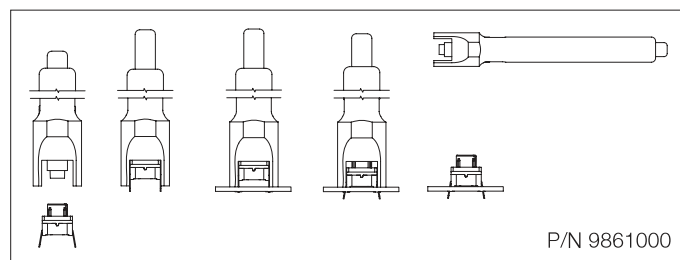
## Circuit Diagram



## How to Assemble



## Mounting Tool for Through-hole versions



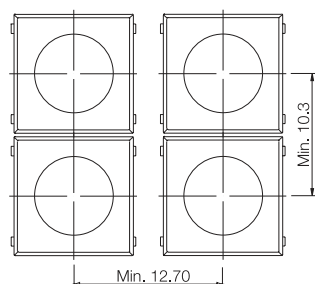
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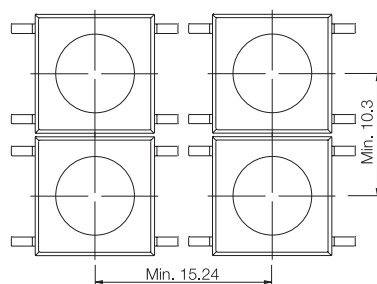
# multimec® spacing

## Basic switch spacing

through-hole

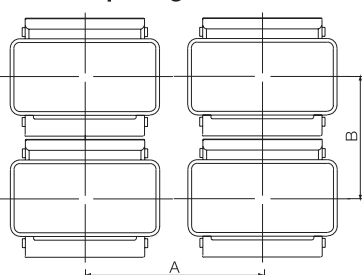


surface-mount

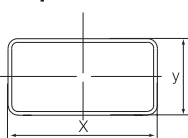


## Recommended switch/cap spacing

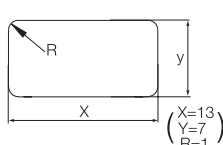
Switch spacing



Cap dimension



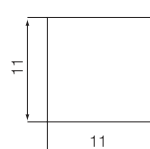
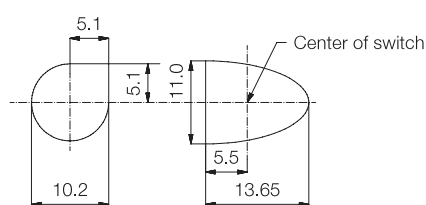
Panel cut-out



Panel Cut-out

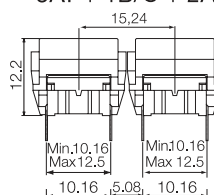
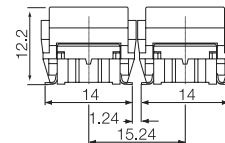
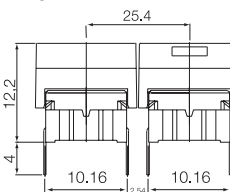
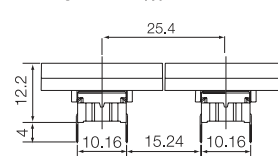
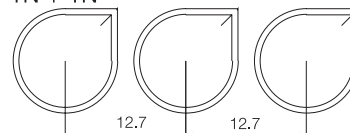
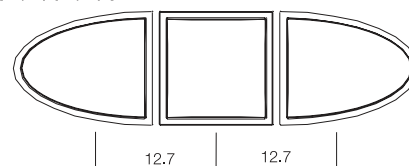
1N 1V

1T



Spacing in mm

## Spacing examples

multimec®  
3AT + 1B/C + 2A/Bmultimec®  
3AS + 1B + 2A/B  
4AS + 1B/1C + 2C/2Dmultimec®  
3AT + 1A/Hmultimec®  
3AT + 1Mmultimec®  
1N + 1N + 1Nmultimec®  
1V + 1T + 1V

| Cap series             | Recommended*<br>min. switch spacing AxB | Nominal cap dimension<br>W x H | Recommended<br>min. panel cut-out |
|------------------------|-----------------------------------------|--------------------------------|-----------------------------------|
| 1A                     | 12.7 x 10.16                            | 12.6 x 10.1                    | 13.0 x 10.5                       |
| 1B/1C+2A/2B            | 15.24 x 15.24                           | 15.1 x 15.1                    | 15.5 x 15.5                       |
| 1D/1E/1F               | 12.7 x 12.7                             | ø9.6                           | ø10.0                             |
| 1K                     | 15.24 x 15.24                           | 14.3 x 14.3                    | 14.7 x 14.7                       |
| 1M                     | 25.4 x 10.16                            | 25.0 x 10.1                    | 25.7 x 10.5                       |
| 1N                     | 12.7 x 12.7                             | ø9.8/□4.9                      | ø10.2/□5.1                        |
| 1P/1Q/1R               | 15.24 x 10.16                           | 6.5 x 12.5                     | 7.0 x 13.0, R Max. 1.0            |
| 1S                     | 12.7 x 10.16                            | ø6.5                           | ø7.0                              |
| 1T                     | 12.7 x 12.7                             | 10.6 x 10.6                    | 11.0 x 11.0                       |
| 1U                     | 12.7 x 12.7                             | ø10.6                          | ø11.0                             |
| 1V (pointing outwards) | 12.7 x 12.7                             | 10.6 x 13.25                   | 11.0 x 13.65                      |
| 1X                     | 12.7 x 12.7                             | 9.4 x 7.4                      | 9.8 x 7.9                         |

\*A dimension with surface mount version is min. 15.24. Depending on manufacturing technology it may be necessary either to reduce pad dimension, or to increase spacing.

In all applications the total assembly tolerance must be analysed by the user (board tolerance, front panel, assembly accuracy), to secure enough room for a free switch movement in the final product. The specifications on this page are to be considered as an aid only. MEC cannot be held responsible for the final assembly.

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# multimec<sup>®</sup>

## technical specifications

### RoHS Compatible

|                                                                        | 3A-3C-3E-3F<br>Low Temperature Versions<br>SilverGold                                                                               |                        | 3A-3C-3E-3F<br>High Temperature Versions<br>SilverGold                                                                                                  |                        | illumec™ 4A - 4F<br>High Temperature Versions<br>SilverGold                                                                                             |                        |
|------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| <b>Electrical Specifications</b>                                       |                                                                                                                                     |                        |                                                                                                                                                         |                        |                                                                                                                                                         |                        |
| Contact resistance                                                     | <30m Ω - typ. 10m Ω                                                                                                                 |                        | <30m Ω - typ. 10m Ω                                                                                                                                     |                        | <30m Ω - typ. 10 m Ω                                                                                                                                    |                        |
| Insulation resistance                                                  | >10M Ω                                                                                                                              |                        | >10M Ω                                                                                                                                                  |                        | >10M Ω                                                                                                                                                  |                        |
| Recommended load                                                       | 0.5-50mA 24VDC                                                                                                                      | 0.5μ-50mA 24VDC        | 0.5-50mA 24VDC                                                                                                                                          | 0.5μ-50mA 24VDC        | 0.5-50mA 24VDC                                                                                                                                          | 0.5μ-50mA 24VDC        |
| Contact bounce                                                         | <2mS - typically 0.5mS                                                                                                              |                        | <2mS - typically 0.5mS                                                                                                                                  |                        | <2mS - typically 0.5mS                                                                                                                                  |                        |
| <b>Mechanical Specifications</b>                                       |                                                                                                                                     |                        |                                                                                                                                                         |                        |                                                                                                                                                         |                        |
| Standard actuation force (switch)                                      | 3.0N typ.                                                                                                                           |                        | 3.0N typ.                                                                                                                                               |                        | 3.0N typ.                                                                                                                                               |                        |
| Max. actuation force without cap                                       | 100N for 10 sec.                                                                                                                    |                        | 100N for 10 sec.                                                                                                                                        |                        | 100N for 10 sec.                                                                                                                                        |                        |
| Key travel (switch)                                                    | 1 mm                                                                                                                                |                        | 1 mm                                                                                                                                                    |                        | 1 mm                                                                                                                                                    |                        |
| Life time (switch)                                                     | >10.000.000 cycles                                                                                                                  |                        | >10.000.000 cycles                                                                                                                                      |                        | >10.000.000 cycles                                                                                                                                      |                        |
| <b>Temperature Range</b>                                               |                                                                                                                                     |                        |                                                                                                                                                         |                        |                                                                                                                                                         |                        |
| Working temperature                                                    | Min. -40°C Max. +115°C                                                                                                              |                        | Min. -40°C Max. +160°C                                                                                                                                  |                        | Min. -30°C Max. +85°C*                                                                                                                                  |                        |
| Storage temperature                                                    | Min. -40°C Max. +115°C                                                                                                              |                        | Min. -40°C Max. +160°C                                                                                                                                  |                        | Min. -30°C Max. +85°C*                                                                                                                                  |                        |
| <b>Soldering IEC 68-2-20</b>                                           | Wave - max. 260°C for max. 10 sec., please refer to usage guidelines.<br>Soldering iron - max. 350°C for max. 3 sec.<br>Flux tight. |                        | Infrared, vapour phase, wave - max. 240°C for max. 40 sec. or max. 260°C for max. 30 sec.<br>Soldering iron - max. 350°C for max. 3 sec.<br>Flux tight. |                        | Infrared, vapour phase, wave - max. 240°C for max. 40 sec. or max. 260°C for max. 30 sec.<br>Soldering iron - max. 350°C for max. 3 sec.<br>Flux tight. |                        |
| <b>Environmental Endurance IEC 68-2-3</b>                              |                                                                                                                                     |                        |                                                                                                                                                         |                        |                                                                                                                                                         |                        |
| Temperature                                                            | +40°C                                                                                                                               |                        | +40°C                                                                                                                                                   |                        | +40°C                                                                                                                                                   |                        |
| Humidity                                                               | 93% RH                                                                                                                              |                        | 93% RH                                                                                                                                                  |                        | 93% RH                                                                                                                                                  |                        |
| Duration                                                               | 56 Days                                                                                                                             |                        | 56 Days                                                                                                                                                 |                        | 56 Days                                                                                                                                                 |                        |
| <b>Temperature Cycling IEC 68-2-14</b>                                 |                                                                                                                                     |                        |                                                                                                                                                         |                        |                                                                                                                                                         |                        |
| Temperature limit                                                      | Min. -40°C - Max. +125°C                                                                                                            |                        | Min. -40°C - Max. +125°C                                                                                                                                |                        | Min. -40°C - Max. +125°C                                                                                                                                |                        |
| Number of cycles                                                       | 10                                                                                                                                  |                        | 10                                                                                                                                                      |                        | 10                                                                                                                                                      |                        |
| Exposure time at each temperature                                      | 30 min.                                                                                                                             |                        | 30 min.                                                                                                                                                 |                        | 30 min.                                                                                                                                                 |                        |
| Recovery time before measurements                                      | 16 hrs.                                                                                                                             |                        | 16 hrs.                                                                                                                                                 |                        | 16 hrs.                                                                                                                                                 |                        |
| Sealing IEC 529                                                        | IP-67                                                                                                                               |                        | IP-67                                                                                                                                                   |                        | IP-67                                                                                                                                                   |                        |
| Cleaning                                                               | Standard methods - see usage guidelines                                                                                             |                        | Standard methods - see usage guidelines                                                                                                                 |                        | Standard methods - see usage guidelines                                                                                                                 |                        |
| <b>Vibration Test IEC 68-2-6</b>                                       |                                                                                                                                     |                        |                                                                                                                                                         |                        |                                                                                                                                                         |                        |
| Cycles                                                                 |                                                                                                                                     |                        |                                                                                                                                                         |                        | 10                                                                                                                                                      |                        |
| Cycles time                                                            |                                                                                                                                     |                        |                                                                                                                                                         |                        | 2 hrs.                                                                                                                                                  |                        |
| <b>Material Specifications - Switches</b>                              |                                                                                                                                     |                        |                                                                                                                                                         |                        |                                                                                                                                                         |                        |
| Housing                                                                | PBT UL94VO                                                                                                                          |                        | PPS UL94VO                                                                                                                                              |                        | PPS UL94VO                                                                                                                                              |                        |
| Actuator                                                               | PBT UL94VO                                                                                                                          |                        | PPS UL94VO                                                                                                                                              |                        | PPS UL94VO                                                                                                                                              |                        |
| Sealing + spring                                                       | Silicone rubber                                                                                                                     |                        | Silicone rubber                                                                                                                                         |                        | Silicone rubber                                                                                                                                         |                        |
| Contact spring                                                         | Stainless steel + 3μAg                                                                                                              | Stainless steel + 1μAu | Stainless steel + 3μAg                                                                                                                                  | Stainless steel + 1μAu | Stainless steel + 3μAg                                                                                                                                  | Stainless steel + 1μAu |
| Fixed contacts                                                         | SnCu + 2μNI + 3μAg                                                                                                                  | SnCu + 2μNI + 1μAu     | SnCu + 2μNI + 3μAg                                                                                                                                      | SnCu + 2μNI + 1μAu     | SnCu + 2μNI + 3μAg                                                                                                                                      | SnCu + 2μNI + 1μAu     |
| Terminals                                                              | SnCu + 2μNI + 3μSn100                                                                                                               | SnCu + 2μNI + 3μSn100  | SnCu + 2μNI + 3μSn100                                                                                                                                   | SnCu + 2μNI + 3μSn100  | SnCu + 2μNI + 3μSn100                                                                                                                                   | SnCu + 2μNI + 3μSn100  |
| <b>Material Specifications - Caps &amp; Bezels</b>                     |                                                                                                                                     |                        |                                                                                                                                                         |                        |                                                                                                                                                         |                        |
| <b>Material</b>                                                        | <b>Parts</b>                                                                                                                        |                        |                                                                                                                                                         | <b>Temp limit</b>      | <b>UL rating</b>                                                                                                                                        |                        |
| ABS                                                                    | 1A, 1B, 1C, 1D, 1E, 1F, 1H, 1K, 1M, 1N, 1P, 1Q, 1R, 1T, 1U, 1V, 1WA, 1WD, 1WP, 1X, 1ZA, 1ZB, 1ZC.                                   |                        |                                                                                                                                                         | Max. 65°C              | UL94HB                                                                                                                                                  |                        |
| Polycarbonate                                                          | All lenses, 3E coloured actuators                                                                                                   |                        |                                                                                                                                                         | Max. 85°C              | UL94V1                                                                                                                                                  |                        |
| LCP                                                                    | Black actuator of 3E                                                                                                                |                        |                                                                                                                                                         | Max. 160°C             | UL94VO                                                                                                                                                  |                        |
| PPS                                                                    | 1S, 2S                                                                                                                              |                        |                                                                                                                                                         | Max. 160°C             | UL94VO                                                                                                                                                  |                        |
| Polyamide                                                              | Actuator of Varimec™, 1GA/1GC                                                                                                       |                        |                                                                                                                                                         | Max. 160°C             | UL94VO                                                                                                                                                  |                        |
| <b>Legends Adhesion</b><br>ISO Class: 1/ASTM Class: 4B DIN EN ISO 2409 |                                                                                                                                     |                        |                                                                                                                                                         |                        |                                                                                                                                                         |                        |

\* LED max. working temperature

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## For 3A switches

## 3AXXX (for 1C/1H)

## 2BXXX

| Colour                             |                                                         | B          | G                   | Y    | R    | G                   | Y    | R    |  |
|------------------------------------|---------------------------------------------------------|------------|---------------------|------|------|---------------------|------|------|--|
| Colour Codes                       |                                                         | 00         | 20                  | 40   | 80   | 20                  | 40   | 80   |  |
| Absolute Maximum Ratings           | (Ta=25°C)                                               |            |                     |      |      |                     |      |      |  |
| Power                              | mW                                                      | 105        | 100                 | 60   | 100  | 75                  | 60   | 60   |  |
| Current forward                    | mA                                                      | 30         | 30                  | 20   | 30   | 20                  | 20   | 20   |  |
| Forward peak current               | mA                                                      | 150        | 120                 | 80   | 120  | 60**                | 60** | 60** |  |
| Voltage reverse                    | V                                                       | 5          | 5                   | 5    | 5    | 3                   | 3    | 3    |  |
| Operating temperature              | °C                                                      | -40 - +85  | -55 - +100          |      |      | -25 - +85           |      |      |  |
| Storage temperature                | °C                                                      | -40 - +85  | -55 - +100          |      |      | -30 - +100          |      |      |  |
| Soldering temperature              | °C                                                      | 260/5 sec. | 260 for max. 3 sec. |      |      | 260 for max. 5 sec. |      |      |  |
| Electrical-Optical Characteristics | (Ta=25°C)                                               |            |                     |      |      |                     |      |      |  |
| Voltage forward                    | Typ. V                                                  | 3.8        | 2.1*                | 2.1* | 2.0* | 2.1                 | 2.1  | 2.0  |  |
|                                    | Max. V                                                  | 4.5        | 2.8*                | 2.8* | 2.8* | 3.0                 | 3.0  | 3.0  |  |
| Current reverse (VR = 5V)          | µA                                                      | 10         | 100                 | 100  | 100  | 10                  | 10   | 10   |  |
| Wave length                        | nm                                                      | 466        | 565                 | 585  | 630  | 563                 | 585  | 650  |  |
| Spread                             | Δnm                                                     | 30         | 30                  | 35   | 40   | 40                  | 40   | 40   |  |
| Spread angle                       | degree                                                  | 40         | 90                  | 90   | 90   | 45                  | 45   | 45   |  |
| Luminous Intensity                 | Min. mcd                                                | 4          | 0.7                 | 1.7  | 1.1  | 9.0                 | 5.6  | 5.6  |  |
|                                    | Typ. mcd                                                | 10         | 2.5                 | 5.6  | 3.7  | 25                  | 16   | 16   |  |
| Orientation                        | The longer pin is the anode, the shorter is the cathode |            |                     |      |      |                     |      |      |  |

\*/F = 20mA, \*\*Pulse width 1ms Duty cycle 1:5

## For 3F switches

## 3FXXX (for 1E-1F-1N-1Q-1R-1S-1X)

## 3FXXX (for 1K-1T-1U-1V-1W)

| Colour                             |                                                                                                                                        | B                   | G    | Y    | W                   | R                   | G/Y                 | R/G     | R/Y     | G                   | Y          | R       |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|---------------------|------|------|---------------------|---------------------|---------------------|---------|---------|---------------------|------------|---------|
| Colour Codes                       |                                                                                                                                        | 00                  | 20   | 40   | 60                  | 80                  | 2040                | 8020    | 8040    | 24                  | 45         | 89      |
| Absolute Maximum Ratings           | (Ta=25°C)                                                                                                                              |                     |      |      |                     |                     |                     |         |         |                     |            |         |
| Power                              | mW                                                                                                                                     | 105                 | 70   | 60   | 114                 | 60                  | 120                 | 120     | 120     | 60                  | 130        | 80      |
| Current forward                    | mA                                                                                                                                     | 30                  | 20   | 20   | 30                  | 20                  | 25                  | 25      | 25      | 25                  | 40         | 30      |
| Forward peak current               | mA                                                                                                                                     | 200                 | 60** | 60** | 100                 | 60**                | 150                 | 150     | 150     | 100                 | 500        | 1000    |
| Voltage reverse                    | V                                                                                                                                      | 5                   | 3    | 3    | 5                   | 3                   | 5                   | 5       | 5       | 5                   | 12         | 12      |
| Operating temperature              | °C                                                                                                                                     | -25 - +85           |      |      | -40 - +85           | -25 - +85           | -40 - +85           |         |         | -40 - +85           | -55 - +100 |         |
| Storage temperature                | °C                                                                                                                                     | -30 - +100          |      |      | -40 - +100          | -30 - +100          | -40 - +85           |         |         | -40 - +100          | -55 - +100 |         |
| Soldering temperature              | °C                                                                                                                                     | 260 for max. 5 sec. |      |      | 260 for max. 2 sec. | 260 for max. 5 sec. | 260 for max. 2 sec. |         |         | 260 for max. 5 sec. |            |         |
| Electrical-Optical Characteristics | (Ta=25°C)                                                                                                                              |                     |      |      |                     |                     |                     |         |         |                     |            |         |
| Voltage Forward                    | Typ. V                                                                                                                                 | 2.1                 | 2.1  | 2.1  | 3.3                 | 2.0                 | 2.1                 | 2.1     | 2.1     | 2.0*                | 2.3***     | 2.0***  |
|                                    | Max. V                                                                                                                                 | 2.8                 | 3.0  | 3.0  | 3.8                 | 3.0                 | 2.8                 | 2.8     | 2.8     | 2.4*                | 2.5***     | 2.3***  |
| Current reverse (VR = 5V)          | µA                                                                                                                                     | 2                   | 10   | 10   | 0.01                | 10                  | 2                   | 2       | 2       | 10                  | 10         | 10      |
| Wave length                        | nm                                                                                                                                     | 460                 | 563  | 585  | NA                  | 650                 | 565/590             | 625/565 | 625/590 | 573                 | 587        | 633     |
| Spread                             | Δnm                                                                                                                                    | 40                  | 40   | 40   | NA                  | 40                  | 35                  | 35      | 35      | 20                  | 45         | 16      |
| Spread angle                       | degree                                                                                                                                 | 20                  | 45   | 45   | 34                  | 45                  | 60                  | 60      | 60      | 100                 | 90         | 85      |
| Luminous Intensity                 | Min. mcd                                                                                                                               | 20                  | 9.0  | 5.6  | 280                 | 5.6                 | 8                   | 8       | 8       | 10****              | 71****     | 180**** |
|                                    | Typ. mcd                                                                                                                               | 25                  | 25   | 16   | 600                 | 16                  | 25                  | 25      | 25      | 20****              | 112****    | 355**** |
| Orientation                        | The longer pin is the anode, the shorter is the cathode. For bicolor LEDs the anode for the first colour (ex. 2080) is the longer pin. |                     |      |      |                     |                     |                     |         |         |                     |            |         |

\*\*\*F = 50mA, \*\*\*\*Luminous Flux mlm

## For 4A/4F switches

## illumece™ LEDs specifications

| Colour                             |           | B                    | G    | Y    | W    | R    |  |
|------------------------------------|-----------|----------------------|------|------|------|------|--|
| Colour Codes                       |           | 01                   | 22   | 42   | 61   | 82   |  |
| Absolute Maximum Ratings           | (Ta=25°C) |                      |      |      |      |      |  |
| Power                              | mW        | 60                   | 65   | 65   | 80   | 65   |  |
| Current forward                    | mA        | 20                   | 25   | 25   | 15   | 25   |  |
| Forward peak current               | mA        | 150                  | 150  | 100  | 200  | 100  |  |
| Voltage reverse                    | V         | 5                    | 12   | 12   | 5    | 12   |  |
| Operating temperature              | °C        | -30 - +85            |      |      |      |      |  |
| Storage temperature                | °C        | -30 - +85            |      |      |      |      |  |
| Soldering temperature              | °C        | 245 for max. 10 sec. |      |      |      |      |  |
| Electrical-Optical Characteristics | (Ta=25°C) |                      |      |      |      |      |  |
| Voltage forward                    | Typ. V    | 3.35                 | 2.2  | 2    | 3.05 | 2    |  |
|                                    | Max. V    | 3.5                  | 2.5  | 2.5  | 3.2  | 2.5  |  |
| Current reverse (VR = 5V)          | µA        | 0.01                 | 0.02 | 0.01 | 0.01 | 0.01 |  |
| Wave length                        | nm        | 470                  | 570  | 588  | n.a. | 633  |  |
| Spread                             | Δnm       | n.a.                 | 30   | 16   | n.a. | 16   |  |
| Spread angle                       | degree    | 145                  | 160  | 160  | 138  | 160  |  |
| Luminous Intensity                 | Min. mcd  | 30                   | 28   | 112  | 28   | 112  |  |
|                                    | Typ. mcd  | 35                   | 70   | 150  | 35   | 150  |  |
| Optical Intensity                  | Lm/w      | 4                    |      |      | 2.5  |      |  |

B= Blue, G= Green, Y= Yellow, R= Red, W= White, G/Y= Green/Yellow, R/G= Red/Green, R/Y= Red/Yellow  
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